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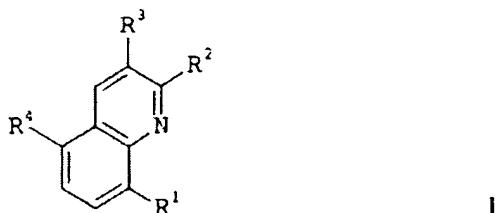
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Serial No. 09/763,704

COPY OF ALL CLAIMS

1. A cyclohexenonequinolinoyl derivative of the formula I

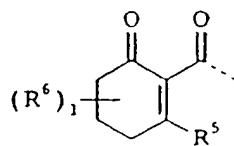


where:

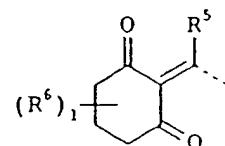
R¹ is hydrogen, nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxyiminomethyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, aminosulfonyl, N-(C₁-C₆--alkyl)aminosulfonyl, N, N-di-(C₁-C₆-alkyl) aminosulfonyl, N-(C₁-C₆--alkylsulfonyl)amino, N-(C₁-C₆-haloalkylsulfonyl)amino, N-(C₁-C₆-alkyl)-N-(C₁-C₆-alkylsulfonyl)amino, N-(C₁-C₆--alkyl)-N-(C₁-C₆-haloalkylsulfonyl)amino, phenoxy, heterocyclyloxy, phenylthio or heterocyclthio, where the four last-mentioned radicals may be partially or fully halogenated and/or may carry one to three of the following substituents : nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R^2, R^3 are hydrogen, C_1 - C_6 -alkyl, C_1 - C_6 -haloalkyl or halogen;

R^4 is a compound IIa or IIb



IIa



IIb

where

R^5 is halogen, OR^7 , SR^7 , SOR^8 , SO_2R^8 , OSO_2R^8 , POR^8R^9 , OPR^8R^9 , $OPOR^8R^9$, $OPSR^8R^9$, $NR^{10}R^{11}$, $ONR^{11}R^{12}$, N-linked heterocyclyl or O-(N-linked heterocyclyl), where the heterocyclyl radical of the two last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^6 is nitro, halogen, cyano, C_1 - C_6 -alkyl, C_1 - C_6 -haloalkyl, di-(C_1 - C_6 -alkoxy)methyl, di-(C_1 - C_6 -alkylthio)methyl, (C_1 - C_6 -alkoxy)(C_1 - C_6 -alkylthio)methyl, hydroxyl, C_1 - C_6 -alkoxy, C_1 - C_6 -haloalkoxy, C_1 - C_6 -alkoxycarbonyloxy, C_1 - C_6 -alkylthio, C_1 - C_6 -haloalkylthio, C_1 - C_6 -alkylsulfinyl, C_1 - C_6 -haloalkylsulfinyl, C_1 - C_6 -alkylsulfonyl, C_1 - C_6 -haloalkylsulfonyl, C_1 - C_6 -alkylcarbonyl, C_1 - C_6 -haloalkylcarbonyl, C_1 - C_6 -alkoxycarbonyl or C_1 - C_6 -haloalkoxycarbonyl;

or

two radicals , which are linked to the same carbon,
together form an $-\text{O}-(\text{CH}_2)_m-\text{O}-$, $-\text{O}-(\text{CH}_2)_m-\text{S}-$, $-\text{S}-(\text{CH}_2)_m-\text{S}-$,
 $-\text{O}-(\text{CH}_2)_n-$ or $-\text{S}-(\text{CH}_2)_n$ chain which may be substituted by
one to three radicals from the following group:
halogen, cyano, $\text{C}_1\text{-C}_4$ -alkyl, $\text{C}_1\text{-C}_4$ -haloalkyl or $\text{C}_1\text{-C}_4$ -
alkoxycarbonyl;

or

two radicals , which are linked to the same carbon,
together form a $-(\text{CH}_2)_p$ chain which may be interrupted by
oxygen or sulfur and/or may be substituted by one to four
radicals from the following group:
halogen, cyano, $\text{C}_1\text{-C}_4$ -alkyl, $\text{C}_1\text{-C}_4$ -haloalkyl or $\text{C}_1\text{-C}_4$ -
alkoxycarbonyl;

or

two radicals , which are linked to the same carbon,
together form a methyldene group which may be substituted by
one or two radicals from the following group:
halogen, hydroxyl, formyl, cyano, $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -
haloalkyl, $\text{C}_1\text{-C}_6$ -alkoxy, $\text{C}_1\text{-C}_6$ -haloalkoxy, $\text{C}_1\text{-C}_6$ -alkylthio, $\text{C}_1\text{-}$
 C_6 -haloalkylthio, $\text{C}_1\text{-C}_6$ -alkylsulfinyl, $\text{C}_1\text{-C}_6$ -haloalkylsulfinyl,
 $\text{C}_1\text{-C}_6$ -alkylsulfonyl or $\text{C}_1\text{-C}_6$ -haloalkylsulfonyl;

or

two radicals , which are linked to the same carbon,
together with this carbon form a carbonyl group;

or

two radicals , which are linked to different carbons,
together form a $-(\text{CH}_2)_n$ chain which may be substituted by
one to three radicals from the following group:
halogen, $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy, hydroxyl or $\text{C}_1\text{-C}_6$ -
alkoxycarbonyl;

alkylcarbonyloxy or C₃-C₆-cycloalkyl;
phenyl, heterocyclyl, phenyl-C₁-C₆-alkyl, heterocyclyl-C₁-C₆-alkyl, phenylcarbonyl-C₁-C₆-alkyl, heterocyclylcarbonyl-C₁-C₆-alkyl, phenylcarbonyl, heterocyclylcarbonyl, phenoxy carbonyl, heterocycloloxy carbonyl, phenoxythiocarbonyl, heterocycloloxythiocarbonyl, phenoxy-C₁-C₆-alkylcarbonyl, heterocycloloxy-C₁-C₆-alkylcarbonyl, phenylaminocarbonyl, N-(C₁-C₆-alkyl)-N-(phenyl)aminocarbonyl, heterocyclaminocarbonyl, N-(C₁-C₆-alkyl)-N-(heterocyclyl)aminocarbonyl, phenyl-C₂-C₆-alkenylcarbonyl or heterocyclyl-C₂-C₆-alkenylcarbonyl, where the phenyl and the heterocyclyl radical of the 20 last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:
nitro, cyano, C₁-C₄-alkyl, C₁-C₄-halogenalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;
R⁸,R⁹ are C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cycloalkyl, hydroxyl, C₁-C₆-alkoxy, amino, C₁-C₆-alkylamino, C₁-C₆-haloalkylamino, di-(C₁-C₆-alkyl)amino or di-(C₁-C₆-haloalkyl)amino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups:
cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl)amino, C₁-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkoxy-C₁-C₄-alkoxycarbonyl, di-(C₁-C₄-alkyl)amino-C₁-C₄-alkoxycarbonyl,
hydroxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, aminocarbonyl, C₁-C₄-alkylcarbonyloxy

or C_3 - C_6 -cycloalkyl;

phenyl, heterocyclyl, phenyl- C_1 - C_6 -alkyl, heterocyclyl- C_1 - C_6 -alkyl, phenoxy, heterocyclloxy, where the phenyl and the heterocyclyl radical of the last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^{10} is C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -haloalkenyl, C_3 - C_6 -alkynyl, C_3 - C_6 -haloalkynyl, C_3 - C_6 -cycloalkyl, hydroxyl, C_1 - C_6 -alkoxy, C_3 - C_6 -alkenyloxy, C_3 - C_6 -alkynyoxy, amino, C_1 - C_6 -alkylamino, di-(C_1 - C_6 -alkyl)amino or C_1 - C_6 -alkylcarbonylamino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three radicals from the following group:

cyano, C_1 - C_4 -alkoxy, C_1 - C_4 -alkylthio, di-(C_1 - C_4 -alkyl)amino, C_1 - C_4 -alkylcarbonyl, C_1 - C_4 -alkoxycarbonyl, C_1 - C_4 -alkoxy- C_1 - C_4 -alkoxycarbonyl, di-(C_1 - C_4 -alkyl)amino- C_1 - C_4 -alkoxycarbonyl, hydroxycarbonyl, C_1 - C_4 -alkylaminocarbonyl, di-(C_1 - C_4 -alkyl)aminocarbonyl, aminocarbonyl, C_1 - C_4 -alkylcarbonyloxy or C_3 - C_6 -cycloalkyl;

phenyl, heterocyclyl, phenyl- C_1 - C_6 -alkyl or heterocyclyl- C_1 - C_6 -alkyl, where the phenyl or heterocyclyl radical of the four last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^{11}, R^{12} are C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -alkynyl or C_1 - C_6 -alkylcarbonyl;

I is 0 to 6;

m is 2 to 4;

n is 1 to 5;

p is 2 to 5;

and their agriculturally useful salts.

2. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 1 where

R^1 is halogen, C_1 - C_6 -alkyl, C_1 - C_6 -haloalkyl, C_1 - C_6 -alkoxy, C_1 - C_6 -alkylthio, heterocyclyoxy or phenylthio, where the two last-mentioned radicals may be partially or fully halogenated and/or may carry one to three of the substituents mentioned below:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^5 is halogen, OR^7 , SR^7 , SOR^8 , SO_2R^8 , OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$, $OPSR^8R^9$, $NR^{10}R^{11}$ or N-bonded heterocyclyl which may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy.

3. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim I, where

R^5 is halogen, OR^7 , $NR^{10}R^{11}$ or N-bonded heterocyclyl which may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy.

4. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 1, where

R^7 is C_1 - C_6 -alkyl, C_1 - C_{20} -alkylcarbonyl, C_1 - C_6 -alkoxycarbonyl, $(C_1$ - C_{20} -alkylthio)carbonyl, N,N -di-(C_1 - C_6 -alkyl)aminocarbonyl, phenyl, phenylcarbonyl or phenoxy- C_1 - C_6 -alkylcarbonyl, where the phenyl radical of the three last-mentioned substituents may be partially or fully halogenated and/or may carry

one to three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R¹⁰ is C₁-C₆-alkyl or C₁-C₆-alkoxy;

R¹¹ is C₁-C₆-alkyl.

5. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 1, where

R⁶ is nitro, halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, di-(C₁-C₆-alkoxy)methyl, di-(C₁-C₆-alkylthio)methyl, (C₁-C₆-alkoxy)(C₁-C₆-alkylthio)-methyl, hydroxyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkoxycarbonyloxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, C₁-C₆-alkylcarbonyl, C₁-C₆-haloalkylcarbonyl, C₁-C₆-alkoxycarbonyl or C₁-C₆-haloalkoxycarbonyl;

or

two radicals, which are linked to the same carbon, together form an -O-(CH₂)_m-O-, -O-(CH₂)_m-S-, -S-(CH₂)_m-S-, -O-(CH₂)_n- or -S-(CH₂)_n chain which may be substituted by one to three radicals from the following group :

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl;

or

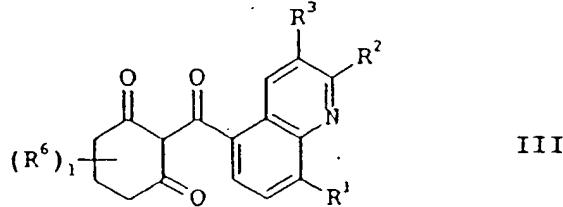
two radicals, which are linked to the same carbon, together form a -(CH₂)_p chain which may be interrupted by oxygen or sulfur and/or may be substituted by one to four radicals from the following group :

halogen, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl or C₁-C₄-alkoxycarbonyl ;

or

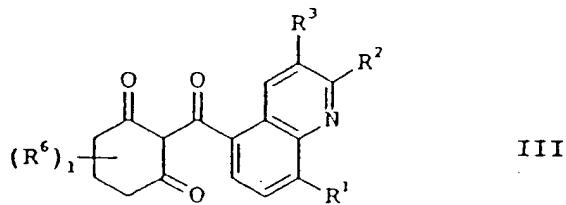
two radicals, which are linked to the same carbon, together with this carbon form a carbonyl group.

6. A process for preparing compounds of the formula I as claimed in claim 1 where R^5 = halogen, which comprises reacting a cyclohexanedione derivative of the formula III,

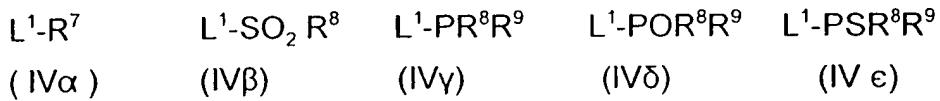


where the variables R^1 to R^3 , and I are each as defined in claim 1, with a halogenating agent.

7. A process for preparing compounds of the formula I as claimed in claim 1 where R^5 = OR^7 , OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$ or $OPSR^8R^9$, which comprises reacting a cyclohexanedione derivative of the formula III,

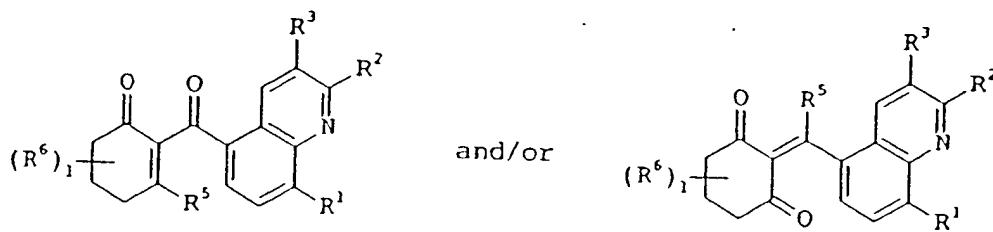


where the variables R^1 to R^3 , and I are each as defined in claim 1, with a compound of the formula IV α , IV β , IV γ , IV δ or IV ϵ ,



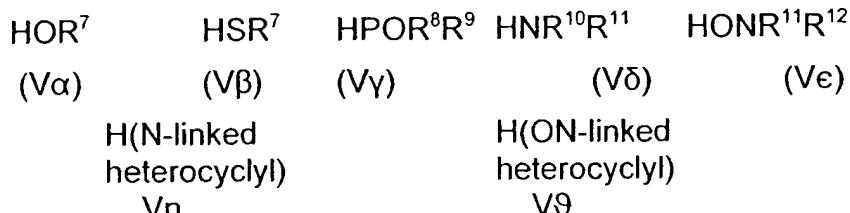
where the variables R^7 to R^9 are each as defined in claim 1 and L^1 is a nucleophilically replaceable leaving group.

8. A process for preparing compounds of the formula I as claimed in claim 1 where R^5 = OR^7 , SR^7 , POR^8R^9 , $NR^{10}R^{11}$, $ONR^{11}R^{12}$, N-linked heterocycl or O-(N-linked heterocycl), which comprises reacting a compound of the formula I α (\equiv I where R^5 = halogen, OSO_2R^8),



I where R^5 = halogen or OSO_2R^8

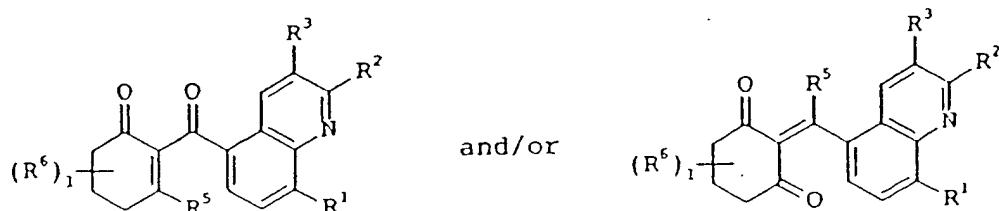
where the variables R^1 to R^3 , R^6 and I are each as defined in claim 1, with a compound of the formula $V\alpha, V\beta, V\gamma, V\delta, V\epsilon, V\eta, V\theta$,



where the variables R^7 to R^{12} are each as defined in claim 1, if appropriate

in the presence of a base.

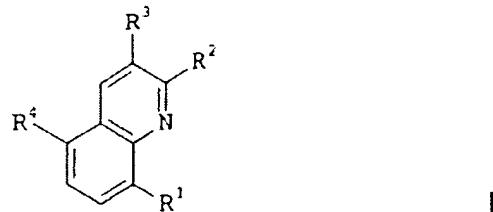
9. A process for preparing compounds of the formula I as claimed in claim 1, where $R^5 = SOR^8, SO_2R^8$, which comprises reacting a compound of the formula $I\beta$ ($\equiv I$ where $R^5 = SR^8$),



I where $R^5 = SR^8$

where the variables R^1 to R^8 and I are each as defined in claim 1, with an oxidizing agent.

10. A composition, comprising a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 1 and auxiliaries which are customarily used for formulating crop protection agents.
11. A process for preparing compositions as claimed in claim 10, which comprises mixing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I and auxiliaries which are customarily used for formulating crop protection agents.
12. A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 1 to act on plants, their habitat and/or on seeds.
13. The use of cyclohexenonequinolinoyl derivatives of the formula I or their agriculturally useful salts as claimed in claim 1 as herbicides.
14. A cyclohexenonequinolinoyl derivative of the formula I



where:

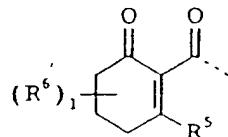
R^1 is hydrogen, nitro, halogen, cyano, C_1 - C_6 -alkyl, C_1 - C_6 -haloalkyl, C_1 - C_6 -alkoxyiminomethyl, C_1 - C_6 -alkoxy, C_1 - C_6 -haloalkoxy, C_1 - C_6 -alkylthio, C_1 - C_6 -

haloalkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-haloalkylsulfinyl, C₁-C₆-alkylsulfonyl, C₁-C₆-haloalkylsulfonyl, aminosulfonyl, N-(C₁-C₆--alkyl)aminosulfonyl,
 N, N-di-(C₁-C₆-alkyl) aminosulfonyl ,
 N-(C₁-C₆--alkylsulfonyl)amino,
 N-(C₁-C₆-haloalkylsulfonyl)amino,
 N-(C₁-C₆-alkyl)-N-(C₁-C₆-alkylsulfonyl)amino,
 N-(C₁-C₆--alkyl)-N-(C₁-C₆-haloalkylsulfonyl)amino,
 phenoxy, heterocyclyloxy, phenylthio or heterocyclithio, where the four last-mentioned radicals may be partially or fully halogenated and/or may carry one to three of the following substituents :

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl,
 C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R², R³ are hydrogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl or halogen;

R⁴ is a compound IIa



where

IIa

R⁵ is halogen, OR⁷, SR⁷, SOR⁸, SO₂R⁸, OSO₂R⁸, POR⁸R⁹,
 OPR⁸R⁹, OPOR⁸R⁹, OPSR⁸R⁹, NR¹⁰R¹¹, ONR¹¹R¹², N-linked
 heterocycl or O-(N-linked heterocycl), where the
 heterocycl radical of the two last-mentioned substituents
 may be partially or fully halogenated and/or may carry one to

three of the following radicals:

nitro, cyano, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy or C₁-C₄-haloalkoxy;

R⁷ is C₁-C₆-alkyl, C₃-C₆-alkenyl, C₃-C₆-haloalkenyl, C₃-C₆-alkynyl, C₃-C₆-haloalkynyl, C₃-C₆-cyloalkyl, C₁-C₂₀-alkylcarbonyl, C₂-C₆-alkenylcarbonyl, C₂-C₆-alkynylcarbonyl, C₃-C₆-cyloalkylcarbonyl, C₁-C₆-alkoxycarbonyl, C₃-C₆-alkenyloxycarbonyl, C₃-C₆-alkynyloxycarbonyl, (C₁-C₂₀-alkylthio)carbonyl, C₁-C₆-alkylaminocarbonyl, C₃-C₆-alkenylaminocarbonyl, C₃-C₆-alkynylaminocarbonyl, N,N-di-(C₁-C₆-alkyl)aminocarbonyl, N-(C₃-C₆-alkenyl)-N-(C₁-C₆-alkyl) aminocarbonyl, N-(C₃-C₆-alkynyl)-N-(C₁-C₆-alkyl) aminocarbonyl, N-(C₁-C₆-alkoxy)-N-(C₁-C₆-alkyl) aminocarbonyl, N-(C₃-C₆-alkenyl)-N-(C₁-C₆-alkoxy) aminocarbonyl, N-(C₃-C₆-alkynyl)-N-(C₁-C₆-alkoxy) aminocarbonyl, di-(C₁-C₆-alkyl)-aminothiocarbonyl, C₁-C₆-alkylcarbonyl-C₁-C₆-alkyl, C₁-C₆-alkoxyimino-C₁-C₆-alkyl, N-(C₁-C₆-alkylamino) imino-C₁-C₆-alkyl or N,N-di-(C₁-C₆-alkylamino)imino-C₁-C₆-alkyl, where the above-mentioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, di-(C₁-C₄-alkyl)amino, C₁-C₄-

alkylcarbonyl, C_1 - C_4 -alkoxycarbonyl, C_1 - C_4 -alkoxy- C_1 - C_4 -alkoxycarbonyl, di-(C_1 - C_4 -alkyl)amino- C_1 - C_4 -alkoxycarbonyl, hydroxycarbonyl, C_1 - C_4 -alkylaminocarbonyl, di-(C_1 - C_4 -alkyl)aminocarbonyl, aminocarbonyl, C_1 - C_4 -alkylcarbonyloxy or C_3 - C_6 -cycloalkyl; phenyl, heterocyclyl, phenyl- C_1 - C_6 -alkyl, heterocyclyl- C_1 - C_6 -alkyl, phenylcarbonyl- C_1 - C_6 -alkyl, heterocyclylcarbonyl- C_1 - C_6 -alkyl, phenylcarbonyl, heterocyclylcarbonyl, phenoxy carbonyl, heterocycloloxy carbonyl, phenoxythiocarbonyl, heterocycloloxythiocarbonyl, phenoxy- C_1 - C_6 -alkylcarbonyl, heterocycloloxy- C_1 - C_6 -alkylcarbonyl, phenylaminocarbonyl, N -(C_1 - C_6 -alkyl)- N -(phenyl)aminocarbonyl, heterocyclaminocarbonyl, N -(C_1 - C_6 -alkyl)- N -(heterocyclyl)aminocarbonyl, phenyl- C_2 - C_6 -alkenylcarbonyl or heterocyclyl- C_2 - C_6 -alkenylcarbonyl, where the phenyl and the heterocyclyl radical of the 20 last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -halogenalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^8, R^9 are C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -haloalkenyl, C_3 - C_6 -alkynyl, C_3 - C_6 -haloalkynyl, C_3 - C_6 -cycloalkyl, hydroxyl, C_1 - C_6 -alkoxy, amino, C_1 - C_6 -alkylamino, C_1 - C_6 -haloalkylamino, di-(C_1 - C_6 -alkyl)amino or di-(C_1 - C_6 -haloalkyl)amino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three of the following groups: cyano, C_1 - C_4 -alkoxy, C_1 - C_4 -alkylthio, di-(C_1 - C_4 -alkyl)amino, C_1 - C_4 -alkylcarbonyl, C_1 - C_4 -alkoxycarbonyl, C_1 - C_4 -alkoxy- C_1 - C_4 -alkoxycarbonyl, di-(C_1 - C_4 -alkyl)amino- C_1 - C_4 -alkoxycarbonyl, hydroxycarbonyl, C_1 - C_4 -alkylaminocarbonyl, di-(C_1 - C_4 -alkyl)aminocarbonyl, aminocarbonyl, C_1 - C_4 -alkylcarbonyloxy

or C_3 - C_6 -cycloalkyl;

phenyl, heterocyclyl, phenyl- C_1 - C_6 -alkyl, heterocyclyl- C_1 - C_6 -alkyl, phenoxy, heterocyclyloxy, where the phenyl and the heterocyclyl radical of the last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^{10} is C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -haloalkenyl, C_3 - C_6 -alkynyl, C_3 - C_6 -haloalkynyl, C_3 - C_6 -cycloalkyl, hydroxyl, C_1 - C_6 -alkoxy, C_3 - C_6 -alkenyloxy, C_3 - C_6 -alkynyoxy, amino, C_1 - C_6 -alkylamino, di-(C_1 - C_6 -alkyl)amino or C_1 - C_6 -alkylcarbonylamino, where the abovementioned alkyl, cycloalkyl and alkoxy radicals may be partially or fully halogenated and/or may carry one to three radicals from the following group:

cyano, C_1 - C_4 -alkoxy, C_1 - C_4 -alkylthio, di-(C_1 - C_4 -alkyl)amino, C_1 - C_4 -alkylcarbonyl, C_1 - C_4 -alkoxycarbonyl, C_1 - C_4 -alkoxy- C_1 - C_4 -alkoxycarbonyl, di-(C_1 - C_4 -alkyl)amino- C_1 - C_4 -alkoxycarbonyl, hydroxycarbonyl, C_1 - C_4 -alkylaminocarbonyl, di-(C_1 - C_4 -alkyl)aminocarbonyl, aminocarbonyl, C_1 - C_4 -alkylcarbonyloxy or C_3 - C_6 -cycloalkyl;

phenyl, heterocyclyl, phenyl- C_1 - C_6 -alkyl or heterocyclyl- C_1 - C_6 -alkyl, where the phenyl or heterocyclyl radical of the four last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^{11}, R^{12} are C_1 - C_6 -alkyl, C_3 - C_6 -alkenyl, C_3 - C_6 -alkynyl or C_1 - C_6 -alkylcarbonyl;

I is 0;

and their agriculturally useful salts.

15. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 14, where

R^1 is halogen, C_1 - C_6 -alkyl, C_1 - C_6 -haloalkyl, C_1 - C_6 -alkoxy, C_1 - C_6 -alkylthio, heterocyclyoxy or phenylthio, where the two last-mentioned radicals may be partially or fully halogenated and/or may carry one to three of the substituents mentioned below:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^5 is halogen, OR^7 , SR^7 , SOR^8 , SO_2R^8 , OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$ $OPSR^8R^9$, $NR^{10}R^{11}$ or N-bonded heterocycll which may be partially or fully halogenated and/or may carry one to three of the following radicals: nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy.

16. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 14, where

R^5 is halogen, OR^7 , $NR^{10}R^{11}$ or N-bonded heterocycll which may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy.

17. A cyclohexenonequinolinoyl derivative of the formula I as claimed in claim 14, where

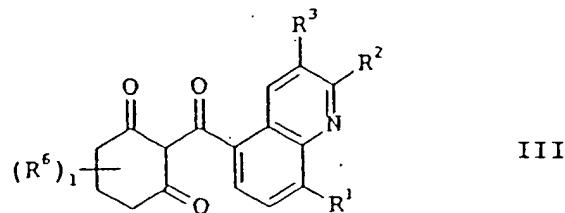
R^7 is C_1 - C_6 -alkyl, C_1 - C_{20} -alkylcarbonyl, C_1 - C_6 -alkoxycarbonyl, $(C_1$ - C_{20} -alkylthio)carbonyl, N,N -di-(C_1 - C_6 -alkyl)aminocarbonyl, phenyl, phenylcarbonyl or phenoxy- C_1 - C_6 -alkylcarbonyl, where the phenyl radical of the three last-mentioned substituents may be partially or fully halogenated and/or may carry one to three of the following radicals:

nitro, cyano, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_1 - C_4 -alkoxy or C_1 - C_4 -haloalkoxy;

R^{10} is C_1 - C_6 -alkyl or C_1 - C_6 -alkoxy;

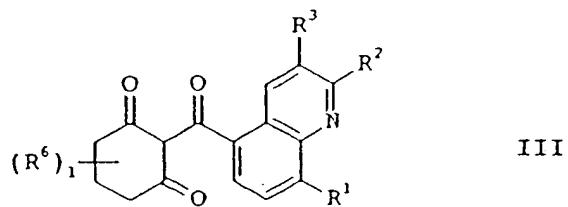
R^{11} is C_1 - C_6 -alkyl.

18. A process for preparing compounds of the formula I as claimed in claim 14 where R^5 = halogen, which comprises reacting a cyclohexanedione derivative of the formula III,

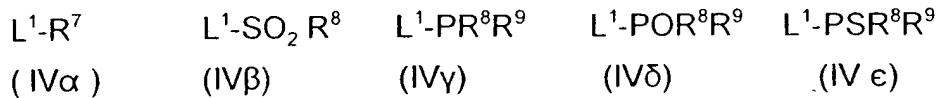


where the variables R^1 to R^3 , and I are each as defined in claim 14, with a halogenating agent.

19. A process for preparing compounds of the formula I as claimed in claim 14 where R^5 = OR^7 , OSO_2R^8 , OPR^8R^9 , $OPOR^8R^9$ or $OPSR^8R^9$, which comprises reacting a cyclohexanedione derivative of the formula III,

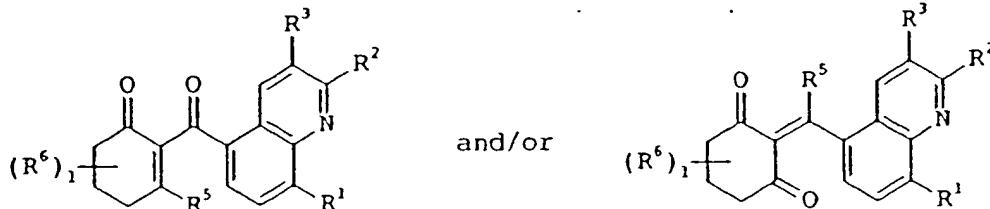


where the variables R^1 to R^3 , and I are each as defined in claim 14, with a compound of the formula IV α , IV β , IV γ , IV δ or IV ϵ ,



where the variables R^7 to R^9 are each as defined in claim 14 and L^1 is a nucleophilically replaceable leaving group.

20. A process for preparing compounds of the formula I as claimed in claim 14 where $R^5 = OR^7, SR^7, POR^8R^9, NR^{10}R^{11}, ONR^{11}R^{12}$, N-linked heterocycl or O-(N-linked heterocycl), which comprises reacting a compound of the formula I α ($\equiv I$ where $R^5 = \text{halogen, } OSO_2R^8$),



I where $R^5 = \text{halogen or } OSO_2R^8$

where the variables R^1 to R^3 , and I are each as defined in claim 14, with a compound of the formula $V\alpha, V\beta, V\gamma, V\delta, V\epsilon, V\eta, V\theta$,

HOR^7 ($V\alpha$)	HSR^7 ($V\beta$)	$HPOR^8R^9$ ($V\gamma$)	$HNR^{10}R^{11}$ ($V\delta$)	$HONR^{11}R^{12}$ ($V\epsilon$)
$H(\text{N-linked heterocycl})$		$H(\text{ON-linked heterocycl})$		
$V\eta$			$V\theta$	

where the variables R^7 to R^{12} are each as defined in claim 14, if appropriate in the presence of a base.

21. A process for preparing compounds of the formula I as claimed in claim 14 where $R^5 = SOR^8, SO_2R^8$, which comprises reacting a compound of the formula I β ($\equiv I$ where $R^5 = SR^8$),



I where $R^5 = SR^8$

where the variables R¹ to R⁵, R⁷, R⁸ and I are each as defined in claim 14, with an oxidizing agent.

22. A composition, comprising a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 14 and auxiliaries which are customarily used for formulating crop protection agents.
23. A process for preparing compositions as claimed in claim 22, which comprises mixing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I and auxiliaries which are customarily used for formulating crop protection agents.
24. A method for controlling undesirable vegetation, which comprises allowing a herbicidally effective amount of at least one cyclohexenonequinolinoyl derivative of the formula I or an agriculturally useful salt of formula I as claimed in claim 14 to act on plants, their habitat and/or on seeds.
25. The use of cyclohexenonequinolinoyl derivatives of the formula I or their agriculturally useful salts as claimed in claim 14 as herbicides.